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ABSTRACT

Because of demographic changes in American society, educators now face the challenge of preparing today's youth for the political, social, and economic effects of an aging population. The purpose of this study was to explore first- and second-graders' ideas about aging and older adults before and after taking part in an integrated unit on aging. The curriculum unit, "Youngster, Oldster," was centered around three broad goals: (1) to promote positive attitudes about aging; (2) to enhance understanding of the aging process; and (3) to develop familiarity and skills in dealing with issues of an aging society. Inquiry-oriented research and narrative history activities included the use of children's literature and opportunities for cross-generational interactions. The unit was pilot tested in one combination first- and second-grade classroom in Texas in 1996. The regular classroom teacher was trained in the curriculum unit, and a pre-experimental one-group, pretest-posttest design was used to evaluate its effectiveness. Instruments used to elicit students' ideas about aging included an informal, whole-class, word association task, projective drawings, and an attitude-toward-aging interview. Results showed that by the end of the unit, children were more likely to: (1) have accurate conceptions of the aging process and life expectancy; (2) perceive aging as a process of continuous growth and development that varies from one individual to another based on many factors; (3) view older adults as happy, active, contributing members of society; (4) recognize similarities/commonalities between young people and older adults; and (5) have a positive outlook on their own future as older adults. (Contains 26 references.) (EV)

CHILDREN'S IDEAS ABOUT AGING BEFORE AND AFTER AN INTEGRATED UNIT OF INSTRUCTION

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by

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CHILDREN'S IDEAS ABOUT AGING BEFORE AND AFTER AN INTEGRATED UNIT OF INSTRUCTION

The United States is currently undergoing dramatic demographic changes, with older adults comprising an ever increasing share of the population. Today, more than one out of every four Americans are age fifty or older. By 2020, it is projected that one in three Americans will belong to the fifty-plus age group (American Association of Retired Persons, 1995). Educators now face the challenge of preparing today's youth for the political, social, and economic effects of these demographic shifts, and providing education about aging-related topics can help.

In their publication *Teaching About Aging: Enriching Lives Across the Life Span* (in press), the National Academy for Teaching and Learning About Aging and National Retired Teachers Association have identified four main reasons why children need to learn about aging. First, education about age-diversity that is integrated at all levels can promote balanced attitudes about aging. As indicated by Couper , Donorfio, & Goyer (1995), negative attitudes about aging exist even among young children, and these attitudes become more negative as children enter preadolescence. Aging education for pre-school and elementary school students has been shown to have the potential for reversing this trend and promoting positive attitudes about aging (Anspaugh, Walker, & Ezell, 1986; Fecht, 1990; Kamenir, 1984; McGuire, 1993A; Seefeldt, Jantz, Galper, & Serock, 1981). Second, teaching and learning about aging can promote healthy lifestyle decisions. The choices young people make affect the length and quality of their lives; thus, a life span approach to health promotion can encourage the development and maintenance of life-long, healthy habits. Third, education on aging helps ready young people for the changing workplace and marketplace. As the median age of people in this country climbs, new

occupations, new goods and services, and more older workers in the workplace are likely consequences. An understanding of aging-related topics can guide young people toward wise career choices, successful business leadership, and positive social interactions in the workplace. Fourth, with four- and five-generation families becoming commonplace today, aging education can prepare young people to deal with aging issues within their own families.

McGuire (1993A), referring to early childhood education and preschool education in particular, calls for content on aging to be "integrated into a variety of classroom activities and subjects" (p.9) within the existing curriculum. She suggests that an integrated approach may be more beneficial than teaching aging content separately. McGuire goes on to state that aging education for young children should be "intergenerational, developmentally focussed, anticipatory education that helps to promote positive attitudes toward age and aging" (p.9) through the use of early children's literature and other means.

Purpose and Research Question

The purpose of the study described in this paper was to explore first- and second-graders' ideas about aging and older adults before and after an integrated unit on aging. Unlike previous aging education studies as cited above, the present study integrated content on aging into existing curricula across all subjects and used descriptive, qualitative methods to assess children's knowledge of and attitudes toward aging and older adults. Specifically, the research question for the study was as follows: Do first- and second-graders' ideas about aging and older adults change (reflecting a more balanced, less negative view) as a result of participating in an integrated instructional unit on aging?

Methodology

In early 1996, my colleagues and I had the opportunity to participate in a professional development institute entitled, "Gerontology in Education: Educating Youth for an Aging Society." This institute, funded by the U.S. Administration on Aging and ITT Hartford Insurance Foundation, was sponsored jointly by the National Academy for Teaching and Learning About Aging, the Texas Institute for Research and Education on Aging, the University of North Texas' College of Education, and the University of North Texas' Center for Studies in Aging. As a result of participating in this institute and inspired by McGuire's (1993A) call for an integrated approach, my colleagues and I initiated an early childhood curriculum development project on gerontology education. The members of my curriculum development team were all university-based teacher educators, with extensive backgrounds in curriculum development, general elementary education, early childhood education, language arts/reading methods, and social studies methods. Three members were former elementary teachers, while the fourth was still employed as a primary grade teacher in a local school district. The resulting resource unit, entitled "Youngster, Oldster," was centered around three broad goals: (1) to promote positive attitudes about aging, (2) to enhance understanding of the aging process, and (3) to develop familiarity and skills in dealing with issues of an aging society. The aging education curriculum included content in language arts, reading, mathematics, science/health/physical education, social studies, and fine arts. It was our intent for activity ideas to be drawn from this resource unit to form a two- to six-week long instructional unit or for activities to be used at different points throughout the school year.

In accordance with suggestions for integrated, interdisciplinary curriculum development outlined by Jacobs (1989) and Fogarty (1991), we followed a four-step process. In the first step, the concept of "aging" and the theme "aging is an opportunity for continuous growth and development" were chosen as the organizing centers for the resource unit. As a second step, questions, subtopics, people, ideas, and materials relating to these organizing centers were brainstormed and placed on a six-spoked wheel--one wheel for each of six subject areas. In the third step, guiding questions were established to serve as a scope and sequence for the unit. These questions included the following: (1) How old is old?; (2) What is the process of aging?; (3) What are people's images of aging?; (4) How does aging affect the family and society?; and (5) How can individuals/society prepare for aging? In the final curriculum development step, teaching-learning activities were written for implementation, and each activity idea was placed in a content-process matrix by classifying it according to the relevant guiding question and appropriate level of Bloom's (1956) Taxonomy (i.e. knowledge, comprehension, application, analysis, synthesis, and evaluation). Table 1 constitutes a partial content-process matrix from the primary grade resource unit.

In developing the curriculum reading list for our unit, we were careful to select children's literature that (1) was readily available to classroom teachers, (2) was commonly used in the existing school curriculum, (3) had potential for interdisciplinary applications, and (4) promoted positive attitudes toward aging and older adults. In meeting these criteria, it was not always possible to avoid <u>all</u> negative depictions or ageist stereotypes. Children's literature often contains ageist stereotypes and misconceptions (Ansello, 1977; Dodson & Hause, 1981). Our approach to this problem was to use any negative depictions or ageist stereotypes as teaching

opportunities--chances to contrast commonly held misconceptions with correct information and a more balanced view of aging. Relatively non-ageist children's literature, as identified by Gottlieb (1995) and McGuire (1993B, 1994), was employed whenever possible.

In generating teaching-learning activities for the unit, we attempted to build in opportunities for cross-generational interactions between primary grade students and older adults. These interactions were both short- and long-term and involved older adults who were both familiar and unfamiliar to the primary grade students. Inquiry-oriented research and narrative history were used to establish the desired intergenerational connections.

In our unit, primary grade students are engaged in inquiry-oriented research by having them collect various kinds of data from adult family members and friends, including older adults. For example, using information from oral interviews and written surveys, the children are able to construct simple pictorial timelines of developmental milestones or major life events in their own lives and in the lives of their parents, grandparents, great-grandparents, and other familiar older adults. These milestones or events include "firsts" associated with crawling, standing, walking, talking, tooth acquisition, bike riding, and various home responsibilities. Once the timelines are made, students are able to compare and contrast the results from various generational groups. In a similar fashion, data is collected and analyzed regarding (1) significant historical events during the lifetimes of people in different generational groups, (2) the nature of a child's life today versus in the past, (3) the interests, aesthetic preferences, and leisure-time activities of people at different stages of development, and (4) living members of the students' respective multi-generational families. Gathering information on living family members allows students to create pictorial genograms, family trees illustrated with family-member portraits and labeled with the

name, relationship, and age of each family member. These genograms serve to graphically represent the number of generations in each student's family and make it possible to compare the number of generations in today's families versus families in the past.

Narrative history or the "image of greatness" approach (Welton and Mallan, 1996) is used within our unit as a second means of promoting intergenerational interactions between primary grade students and older adults. With this technique, prominent citizens from our recent or distant past are studied in-depth in order to provide children with inspiring role models. In implementing this approach, students interview older adults who are currently active and making significant contributions to the local community. Whenever possible, these older adults are invited to school as guest speakers. The in-class interviews and other research efforts are followed by the generation of pictorial timelines (in the form of large hallway displays) of the older adults' accomplishments. To extend this study of narrative history beyond the local setting and present day, the students read children's books based on the real-life stories of active, contributing older adults from other times and places. Exemplary books include Ackerman's (1988) *Song and Dance Man*, Cooney's (1985) *Miss Rumphius*, Houston's (1992) *My Great-Aunt Arizona*, Kesselman's (1980) *Emma*, Mitchell's (1993) *Uncle Jed's Barbershop*, and Schwartz's (1991) *Supergrandpa*. After reading these books, the children create charts that compare and contrast the books in terms of the main characters' ages, activities, and societal contributions.

The interdisciplinary unit described above was pilot tested in one combination first- and second-grade classroom in one school in north central Texas at the close of the 1995-96 school year. Prior to beginning instruction, the regular classroom teacher participated in several

inservice training sessions. These sessions, designed by the lead investigator, were designed to thoroughly familiarize the teacher with (1) the aging concepts that she would be teaching to her students and (2) the instructional approaches that she would be using to deliver instruction. In implementing activities from this unit, the teacher was free to select activities that complemented existing local and state curricula, but her activity selection was monitored to ensure that it (1) addressed all five guiding questions, (2) included opportunities for intergenerational involvement (through the use of inquiry-related research and narrative history as described previously), and (3) gave proper attention to promoting more positive attitudes about age and aging through children's literature. Table 2 lists some of the major activities under each guiding question that were implemented by the teacher.

Twenty students, eight first-graders and twelve second-graders in one combination first- and second-grade classroom, participated as subjects in the pilot study. There was an equal number of males and females, with 45% of the students being Caucasian, 35% African-American, and 20% Hispanic.

A pre-experimental one-group, pretest-posttest design was used to evaluate the effect of interdisciplinary aging education on first- and second-graders' knowledge of and attitudes toward aging and older adults. This design was considered appropriate for the pilot test because the behaviors to be measured (e.g., prejudices toward aging and older adults) were not likely to change all by themselves. All of the children participated in selected unit activities over a six-week period, with activities spread throughout the school day and across all subject areas. Before and after the unit, children's ideas about aging and older adults were elicited using three assessment tools. These assessments, described in greater detail below, included the use of an

informal, whole-class, word-association task, (2) projective drawings (i.e. children's human figure drawings), and (3) an attitude-toward-aging interview.

As an informal pretest-posttest of students' ideas about aging, the class (as a whole) was asked to brainstorm words associated with "young" and "old." The regular classroom teacher listed these words, without evaluative comment, on a large piece of chart paper as the students thought of them. The activity continued until no further words were offered by the children.

The use of projective drawings as an assessment tool was modeled after administration and data analysis techniques described by Couper, Donorfio, & Goyer (1995). Each child was given crayons and 9" x 12" manilla paper with the directions, "Please draw a picture of an old person and a young person." Children were told they were not being judged or tested, but that they were to work independently. The drawings were completed in approximately fifteen minutes. Two trained, independent evaluators coded the structural features of the young and old persons in each drawing. These structural features included physiological characteristics, physical aids, clothing style, level/kind of activity, and level of young/old interaction. As a check on the level/kind of activity and level of young/old interaction, the students were individually interviewed regarding what and whom their drawings depicted.

Following pre- and post-unit interview and data analysis procedures outlined in Brophy, VanSledright, & Bredin (1992), individual students were orally interviewed using an attitude-toward-aging questionnaire. The questionnaire featured the first seven questions below at pretest and all eight questions below at posttest:

1. How old is an old person?

2. What happens to people as they get older?

3. What do most old people spend their time doing?

4. What can an old person do for a young person?

5. What can a young person do for an old person?

6. What can an old person and young person do together?

7. Are old people important? Why/why not?

8. When I am old, I will . . . .

The oral interview required between five and ten minutes per child, and each interview was tape-recorded and later transcribed for analysis. Wait time (after the interviewer's question/prompt and after a student's response) and the number and nature of allowable interviewer prompts were the same for all students interviewed. Children's responses were analyzed with respect to the qualitative aspects of their thinking about aging and older adults, including the identification of commonly-held ageist attitudes. Stated more specifically, pre- and post-unit data were analyzed by (1) identifying categories of responses using constant comparison methods and (2) tallying the number of responses in each category. These categories were developed post facto based on the actual words from obtained student responses. No attempt was made to code the data using categories developed in advance. Two judges independently categorized and tallied the students' responses, and any discrepancies were discussed until consensus was reached.

In order to monitor unit implementation and ascertain the classroom teacher's formative reaction to the unit, the teacher was asked to keep a journal or log throughout instruction. At the end of the unit, as a means of tapping her summative reactions, the teacher was also interviewed

about (1) what she liked/disliked about the aging education curriculum, (2) real or potential problems in implementing the unit, and (3) what factors influenced students' learning.

Results

Table 3 contains the student-generated word lists from the informal, whole-class word association task. At pretest, the words associated with "old" included negative physiological characteristics (e.g., crippled, sick, weak), negative mental characteristics (e.g., bored, grumpy, sad, unhappy), and words indicative of low levels of activity (e.g., rest, retired). By posttest, the list of words associated with "old" had changed dramatically, with the inclusion of positive physiological characteristics (e.g., active, beautiful, pretty), positive mental characteristics (e.g., happy, nice, sweet, wise), and words indicative of high levels of activity (e.g., active, dancing, playful). The "young" and "old" word-association lists at pretest had no words in common, while the posttest lists contained six overlapping words (i.e. active, happy, lonely, playful, serious, sweet). Although the posttest word list corresponding to the word "old" still contains negative, ageist stereotypes (e.g, dying, lonely), it represents a much more balanced, positive view of aging and older adults.

Tables 4 and 5 contain selected data derived from children's projective drawings of "young and old persons." Table 4 describes the activities that were depicted, while Table 5 indicates what physical characteristics were depicted.

With respect to Table 4, a pretest-posttest shift from sedentary and passive leisure activities (e.g., walking-2, getting a drink-2, watching TV/movie-2, lying/sitting-1, talking-1, watching birds-1, watching out window-1) to quasi-active and active leisure activities (e.g.,

playing sports/games-7, running-1, taking photographs-1) is evident. It should be noted that only two pretest and three posttest drawings depicted no activity and no intergenerational interaction.

Table 5 reveals changes from pretest to posttest in children's physical depictions of "old persons." There is a noticeable decrease in the number of students drawing older adults with gray hair (from 10 to 6) and age spots/wrinkles (from 6 to 2). At pretest, two students drew older adults engaged in sedentary activities (sitting, reclining, watching TV), and one student drew an older adult with a physical aid (i.e. a cane). By posttest, these tallies fell to zero. Perhaps the most interesting finding in Table 5 relates to the ten students who drew similar-looking "young and old persons" at posttest. The persons depicted by these students resembled each other in face, body, and dress, except that the older adult was slightly bigger or taller than the young person. None of the pretest drawings depicted young people and older adults in this way.

By posttest, the first- and second-grade subjects were more likely to draw themselves as the "young person" and a familiar older adult as the "old person." The ratio of students who depicted themselves versus those who did not changed from 9:11 at pretest to 14:6 at posttest. Similarly, the ratio of students who depicted familiar older adults versus those who did not changed from 11:9 at pretest to 17:3 at posttest. Of the ten students who drew similar-looking "young and old persons" as described above, six depicted themselves as the "young person" and eight depicted a familiar older adult as the "old person." Many of these students appeared to have drawn "present" and "future" portraits of themselves.

Tables 6 through 13 present students' interview responses to the various pre- and post-unit questions comprising the attitude-toward-aging questionnaire. These responses and the

accompanying pretest-posttest tallies serve to contrast the students' entry-level knowledge and attitudes with their knowledge and attitudes after experiencing the interdisciplinary unit on aging.

Table 6 summarizes students' pretest-posttest responses to question 1, "How old is an old person?" Pretest responses ranged from age 3 to 104, while posttest responses ranged from age 52 to 104. Students' posttest responses centered around the 80s (13), reflecting a more accurate conception of average human life expectancy.

Table 7 shows students' pretest-posttest responses to question 2, "What happens to people as they get older?" Students' preoccupation with death and dying was evident at both pretest (13) and posttest (16), but posttest responses also described aging as a continuous process of "growth" (9) and "change" (4), with death being the natural end point of that process. By posttest, "getting stronger" (1), "helping people" (1), "learning more" (1), and "working better" (1) were named as positive consequences of the aging process. Answers such as these were not present at pretest. Likewise, pretest responses such as "they get weaker" (1) and "the body quits working" (1) were not among the posttest responses.

Table 8 contains students' pretest-posttest responses to question 3, "What do most old people spend their time doing?", and it illustrates the impact of the interdisciplinary unit on students' ideas about the activity level of older adults. The most frequent pretest responses centered around sedentary or passive leisure activities (e.g., sitting-7, sleeping/lying down/lying in bed-5, and watching TV-4), while the most frequent posttest responses included quasi-active and active leisure activities (e.g., playing sports/games-11, dancing-8, shopping-4). Six children at posttest, compared to zero children at pretest, mentioned that older adults spend their time interacting with children. Many of the unexpected posttest responses (e.g., dancing-8, building

with blocks-3, working in parades-2, cheerleading-1) seemed to reflect the memorableness of children's books and pictures/photographs featuring older adults that were used during instruction.

Questions 4 and 5 asked, "What can a young person do for an old person?" and "What can an old person do for a young person?" respectively. Students' pretest-posttest responses to these questions can be found in Tables 9 and 10. Table 10 indicates that the students' notion that older adults need help from young people because they are physically disabled and/or sick remained unchanged from pretest to posttest. On the other hand, Table 9 suggests that students came to realize, after participating in the interdisciplinary unit, that young people also can be sick, hurt, and physically dependent, thus needing assistance from older adults. Overall, this data reflects movement toward a more balanced perspective on aging, with young people and older adults viewed as experiencing similar problems and being capable of similar helpful behaviors.

Table 11 features students' pretest-posttest responses to question 6, "What can an old person and young person do together?" Like Table 8, Table 11 documents students' changing ideas about the activity level of older adults. Playing games (8), playing sports (5), dancing (5), shopping (4), and swimming (3) were among the most frequently mentioned activities at posttest. These same activities, suggestive of a high activity level, were not mentioned or were mentioned infrequently at pretest. Again, some of the students' responses (e.g., dancing-5 and swimming-3) seemed to be derived from memorable children's books and pictures/photographs that were used during instruction.

Question 7 asked, "Are old people important? Why?" Table 12 lists and tallies students' pretest-posttest responses to this question. At pretest, seventeen of twenty students stated that

older adults are important. Students' pretest justifications for their mostly affirmative responses included the imminency of death for older adults (5), the sickliness of older adults (4), and the dependence/physical disabledness of older adults (3). Compared to the pretest responses described above, the posttest responses indicate a much more positive view of aging and older adults. By the end of the interdisciplinary unit, all twenty students agreed that older adults are important. In addition, older adults were seen as being helpers/care-givers (8), exhibiting pleasant, jovial personalities (6), and having positive relationships with young people (4). Responses such as these were either absent or infrequently given at pretest.

Table 13 summarizes students' posttest-only responses to question 8, "When I am old, I will . . . ." This question serves to reveal students' highly positive, post-unit perceptions of their own future lives as older adults. Among the most frequent responses were "working" (5), "going shopping" (3), " helping someone" (3), "playing sports" (3), "dancing" (2), "doing things outside/going out" (2), "hunting/fishing" (2), "playing with children" (2), and "traveling/visiting" (2).

Some possible reasons behind the unit's success were revealed through the classroom teacher's journal/log and post-unit interview. The teacher emphasized the importance of intergenerational contacts (through inquiry and narrative history activities), but she also added that such expriences would have been worthless without her having focussed students' attention on the ideas to be learned. As suggested by the teacher, simply putting active older adults and young people together was not enough to promote children's attitudinal change toward aging. Nor were any of the other experiential instructional activities sufficient for this purpose, not without being followed by carefully executed, teacher-debriefings that (1) highlighted the

concepts to be learned and (2) facilitated child-child and teacher-child communication exchanges about these same concepts. It was the teacher's opinion that the verbal exchanges within the teacher-led debriefings contributed to (1) the refinement of students' conceptual understanding of aging, (2) the reconstruction of students' attitudes toward aging, and (3) the development of students' verbal fluency in expressing aging-related concepts and non-ageist attitudes. Overall, the teacher reacted very positively to the unit, praising the unit for its range of subject matter content, use of children's literature as part of a balanced reading program (including read-alouds, guided readings, and shared readings), and attention to state-mandated essential knowledge and skills.

Discussion

"Youngster, Oldster," an interdisciplinary unit for the primary grades, appears to provide a sound model for educators interested in developing and/or implementing aging education curriculum. By the end of the unit, the children were more likely to (1) have accurate conceptions of the aging process and life expectancy, (2) perceive aging as a process of continuous growth and development that varies from one individual to another based on many factors, (3) view older adults as happy, active, contributing members of society, (4) recognize similarities/commonalities between young people and older adults and (5) have a positive outlook on their own future as older adults. The unit provided students with the opportunity to learn to deal with aging-related topics and issues in a real-world, interdisciplinary way--a way that did not divide but related knowledge fields. By including intergenerational activities followed by teacher-led debriefings that focussed attention on pertinent concepts, this real-world

connection was made salient to young learners. In addition, carefully selected children's literature and pictures/photographs, which promoted positive attitudes about aging and older adults, served to reinforce students' learning by allowing them to vicariously experience the process of aging. These images and stories helped students shape and retain desirable ideas.

In implementing an instructional unit of selected activities from the "Youngster, Oldster" resource unit, the teacher involved in the pilot test chose intergenerational activities that were short-term and that mostly involved familiar older adults. One wonders whether the learning could have been further enhanced by providing opportunities for longer-term interactions with unfamiliar older adults. Although not designed to test such an assertion, partial data from a second pilot test, conducted with a class of eighteen first-graders (61% male, 39% female, 56% Caucasian, 33% Hispanic, 11% African-American) in the same school district during the 1996-97 school year, suggests that longer-term interactions with unfamiliar older adults can be highly meaningful and memorable.

In the second pilot test, the teacher had the children gather information from unfamiliar older adults. Older adults who were highly involved in functions at the local community senior center were contacted and used for this purpose. These active older adults were asked to complete a questionnaire which had them list their favorite indoor work and play activities, their favorite outdoor work and play activities, and their favorite activity to do with a school-age child. In turn, the children responded to a similar questionnaire and sent their responses to the older adults. The children categorized and tallied responses from the completed questionnaires, noting similarities and differences between their answers and the answers given by the older adults. As

one might expect, the children discovered many common interests, including recreational reading and playing in the park.

A field trip to the local senior center was also organized. On this carefully planned excursion, the first-graders had the opportunity to meet the same active older adults with whom they had earlier exchanged questionnaire information. Having established an initial rapport through this written communication, the older adults and children immediately were at ease with each other. Eager older adults guided students through their facilities at the senior center, sharing their interests in hobbies such as piano playing, woodworking, and crafts. After the tour, the children joined the older adults in a low-impact aerobics class. In preparation for this part of the field trip, the primary grade students had learned some "age-smart" daily stretching exercises for life-long use. These exercises were shared with the older adults, with the children demonstrating and leading the routines. The older adults, in turn, guided the children through their usual musically-accompanied aerobic workout. Over a picnic lunch, intergenerational conversation was stimulated through the use of "memory collages" that the children had created. Looking at the cut-out magazine pictures comprising the collages, the young artists and older adults told each other what the pictures reminded them of from their own lives. The children's success in verbalizing ideas and stories based on these pictures was ensured by having them practice this activity with teacher and peers prior to the field trip. The outing ended with the older adults and children reading to each other from children's books about active older adults, which had been used throughout the unit and brought from school to the senior center for just this purpose. The intergenerational connections were continued beyond the day of the field trip, with the older adults and first-graders writing to each other as "pen pals" on a regular basis.

Tables 14 and 15 contain post field trip interview data, collected eight weeks after the field trip. Table 14 indicates the relative salience of various field trip sights and activities, of which "exercising" (11) and "having lunch with the older adults" (11) were the most frequently cited. The wide range of responses and large number of tallies within most response categories suggest (1) the highly memorable nature of the field trip experiences and (2) students' high degree of verbal fluency in relating these experiences. Table 15 summarizes students' perceptions of what they learned about older adults by going on the field trip. The most frequent response was that older adults "are active," with sixteen of eighteen first-graders mentioning either older adults' general activity level or specific activities in which they engage.

Overall, the results of the pilot tests indicate that interdisciplinary instruction on aging, featuring intergenerational activities and appropriate children's literature, can have positive effects on primary grade students' knowledge of and attitudes toward aging and older adults. By participating in such instruction, children can learn aging-related concepts and alter ageist attitudes.

Suggestions for Future Research

Curriculum development efforts linking gerontology with the traditional academic disciplines taught in the elementary school are in their infancy. Future efforts are likely to benefit from findings and instructional implications derived from studies, such as this one, that make use of descriptive, qualitative data. Subsequent research needs to move towards using true experimental designs to (1) compare the effects of traditional, single-discipline units versus integrated units, (2) isolate the factors within integrated units that lead to various cognitive,

social, and affective learning outcomes, and (3) explore the impact of school-based intergenerational programs on older adults.

Additional information on aging education can be obtained by contacting the National Academy for Teaching and Learning About Aging, University of North Texas, P.O. Box 13438, Denton, Texas 76203-6438.

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TABLE 1

Partial Content-Process Matrix With Sample Teaching-Learning Activities Across All Subject Areas

Guiding Question	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
How old is old?	· sequence works of art from different "ages" of art · count and teach place value by decades generations, and centuries	· summarize timelines of significant local, state, national, and world events in the children's, parents', grandparents', and great-grandparents' lifetimes	· graph average life expectancies of humans vs. various plants/animals	· compare/contrast art/music styles popular during the childhood or "coming of age" of different cohort groups	· visit an art museum (perhaps with older adults) and develop a timeline of different works of art using museum postcards or museum catalog pictures	· give an opinion on whether a given work of art/music is timeless or ageless
What is the process of aging?	· identify pictures of baby and adult plants/animals	· explain, to an older adult, a previously-constructed "lifeline" of one's own personal developmental milestones from birth to present	· measure, chart, and graph growth of various plants/animals kept in the classroom or at home	· compare/contrast students' writing samples from different points in the school year to show "growth"	· investigate the effects of "preservatives" and "restoratives" on art media · create diamante poems entitled "youngster, oldster," " tadpole, frog," etc.	· discuss which stage of human development is "best"
What are people's images of aging?	· list characteristics of "young" and "old" persons · list words associated with "young" and "old"	· discuss American scientists who have made contributions late in life and whether these contributions are surprising given the persons' ages	· tally, chart, and graph frequencies of perceived characteristics of young people and older adults present in children's portraits of "young" and "old" persons	· compare/contrast a list of scientifically-established "facts" about aging vs. children's perceptions of aging	· create headlines and news stories about older adults who have made (or who are making) societal contributions	· evaluate the fairness of the treatment people receive at different stages of development
How does aging affect the family and society?	· state what demographic data on our aging American society projects about the increasing number of older adults in the population	· tell what children/society can learn from (a) an old work of art/music and (b) an older adult	· using rubbings of "old" and "new" tombstones, compute age at death	· make inferences about infant mortality and average life expectancy today vs. 100 years ago based on data from "old" and "new" tombstones	· design a reader's theater presentation of a children's story/book dealing with a familial or societal aging dilemma	· evaluate the importance of older adults in one's family
How can individuals/society prepare for aging?	· list ways older adults stay "actively" engaged (in work, hobbies, leisure time activities)	· share things older adult relatives do to remain active; draw pictures and write captions to communicate these ideas	· demonstrate skill in "living on a limited income" by budgeting "money" to pay for special school activities/privileges	· analyze the child-like quality of Grandma Moses' paintings and the themes--celebrating life, family, intergenerational relationships	· create a "touch poem" using a word for each line that describes how an older adult's hand feels; discuss human need for love/affection/touch	· evaluate the "age-smart" value of a meal (in terms of fat, sugar, calories) · evaluate simple design solutions for aging in the home present in student-constructed model rooms

TABLE 2
Major Instructional Activities Under Each Guiding Question
That Were Implemented by the Teacher

How old is old?

Graph and step-off life expectancies of humans versus various plants/animals.

+Research the life expectancy of plants/animals in Babbitt's (1975) *Tuck Everlasting.*

+Discuss what life would be like if we did not age, as in Babbitt's (1975) *Tuck Everlasting.*

What is the process of aging?

+Read children's literature about and identify/categorize baby and adult animals; write and illustrate a class "big book" on the subject.

+Research the life cycles of plants/animals in Babbitt's (1975) *Tuck Everlasting.*

Identify/categorize pictures of people at four stages of development--infant, toddler, teenager, and adult.

Create patterns using people-shape cut outs--infant, toddler, teenager, and adult.

*Construct and illustrate "lifelines" of developmental milestones from one's birth to the present day; compare/contrast them with "lifelines" of familiar older adults.

Create two-word poems (two words per line) about each stage of human development.

Create stories about persons at each stage of development (e.g., "I am an infant, and I like ....").

*Compare/contrast interests, hobbies, leisure activities, and art/musical preferences of people at different stages of development, including familiar older adults.

What are people's images of aging?

+Generate observations about how older adults are depicted in children's literature and illustrations; identify ageist stereotypes, if present.

+Read children's literature about active older adults; compare/contrast the characters' ages, activities, and societal contributions

+Write an alternative text to Cowley's (1996) *Our Granny* using action words (e.g., "When she ___, she ___.").

*Interview older adults who are active and making significant contributions to the local community.

+ Research older adults (past and present) who are active and making significant contributions to the city, state, nation, and world; create illustrated timelines of their accomplishments for display in the hallway.

How does aging affect the family and society?

*+Construct simple, pictorial genograms of each child's family and of multi-generational families depicted in children's literature.

Tell what children/society can learn from (1) an old work of art/music and (2) an older adult.

+Using children's literature, compare/contrast aging in various cultures and ethic groups.

How can individuals/society prepare for aging?

+ Read and analyze children's literature about young people and older adults enjoying each other's company, doing things together, and helping each other.

Collect pictures and write/illustrate ideas about (1) how older adults stay active and (2) interests and leisure activities that young people and older adults can share.

Analyze the child-like quality of Grandma Moses' paintings and the underlying themes--celebrations of life, family, and intergenerational relationships; create primitive paintings in recognition/appreciation of one's own multi-generational family events/activities.

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*Activities involving inquiry-oriented data gathering using older adults as resource persons.

+Activities involving relatively non-ageist children's literature.

TABLE 3
Students' Word-Association Lists
Generated During the Informal, Whole-Class Assessment Task

Pretest Lists	Posttest Lists
Words associated with "old":	Words associated with "old":
bored	active
crippled	beautiful
grumpy	dancing
poor	dying
rest	happy
retired	lonely
sad	nice
sick	playful
tired	pretty
unhappy	serious
weak	sweet
	wise
Words associated with "young":	Words associated with "young":
active	active
cute	fun
excited	gifted
friends	glad
happy	happy
healthy	lonely
mad	mad
playful	playful
wise	sad
work	serious
	silly
	sweet
	upset
	working

TABLE 4
Pretest-Posttest Activity Depictions of "Young and Old Persons"

Activity Depicted	Pretest Tally	Posttest Tally
Playing active sports/games together (basketball, golf, shooting, soccer, tag)	2	7
Walking together	2	3
(None)	2	3
Having photograph made together	0	2
Going to the fair/circus together	1	1
Shaking hands; hugging	1	1
Playing dress up/house/dolls together	1	1
Running toward each other	0	1
Having a shouting/screaming contest	0	1
Taking photographs together	0	1
Getting a drink together; going for lemonade together	2	0
Watching TV/a movie	2	0
Dancing together	1	0
Lying/sitting on the beach together (old person in lawn chair with cane)	1	0
Waking up (old person awakens young person)	1	0
Going shopping at the mall together	1	0
Talking together	1	0
Watching birds together	1	0
Watching out a window together	1	0

TABLE 5
Pretest-Posttest Physical Depictions of "Old Persons"

Physical Depiction	Pretest Tally	Posttest Tally
Resemble young person (in face, body, dress) except slightly bigger/taller	0	10
Have gray hair	10	6
Are darkly colored	3	3
Have age spots/wrinkles	6	2
Are sedentary (sitting, reclining, watching TV)	2	0
Have a physical disability (use a cane)	1	0

TABLE 6
Pretest-Posttest Responses to Question 1
Q1: How old is an old person?

Response	Pretest Tally	Posttest Tally
0-9	1	0
10-19	1	0
20-29	1	0
30-39	1	0
40-49	1	0
50-59	3	1
60-69	2	0
70-79	1	1
80-89	3	13
90-99	5	4
100+	3	2
Old	1	0
When you get bigger	1	0
I don't know	1	0

TABLE 7
Pretest-Posttest Responses to Question 2
Q2: What happens to people as they get older?

Response	Pretest Tally	Posttest Tally
They die	13	16
They grow/get bigger/get taller	3	9
They change	0	4
They get sick	2	4
Hair gets light/white/gray	2	2
Skin gets old/wrinkled	1	1
They get stronger	0	1
They help people	0	1
They learn more	0	1
They work better	0	1
They lose teeth	0	1
They get old/really old	1	1
Age gets older	0	1
They get weaker	2	0
Body quits working	1	0
I don't know	1	0

TABLE 8
Pretest-Posttest Responses to Question 3
Q3: What do most old people spend their time doing?

Response	Pretest Tally	Posttest Tally
Playing sports/games (ball, baseball, cards, football, tag)	0	11
Dancing	0	8
Doing something with children	0	6
Shopping (going to mall, buying food)	2	4
Building (buildings, with blocks)	0	3
Working (in workplace, parades)	1	2
Visiting and going out with friends	0	2
Reading	1	1
Hunting and fishing	1	1
Cheerleading	0	1
Going for ice cream	0	1
Having fun	0	1
Helping people	0	1
Traveling	0	1
Walking	0	1
Being retired	1	0
Cleaning	1	0
Cooking	1	0
Eating	1	0
Growing old	1	0
Sewing	1	0
Sitting	7	0
Sleeping/lying down/lying in bed	5	0
Watching TV	4	0
Staying at home	1	0

TABLE 9
Pretest-Posttest Responses to Question 4
Q4: What can old persons do for young persons?

Response	Pretest Tally	Posttest Tally
Get/buy/cook food and drink	6	6
Nurse them when they are sick/hurt; give them medicine	2	6
Take them to doctor	1	3
Reach something high on a shelf	2	2
Help them walk	0	2
Help them; do favors for them	2	1
Feed them	1	1
Drive them to school	0	1
Go to the store	0	1
Help make up their bed	0	1
Help them if they are lost	0	1
Take them on a trip	0	1
Get/give them candy	3	0
Get/buy/make them clothes, furniture	2	0
Keep/babysit/take care of them	2	0
Love them	1	0
Read to them	1	0
Teach them	1	0

TABLE 10
Pretest-Posttest Responses to Question 5
Q5: What can a young person do for an old person?

Response	Pretest Tally	Posttest Tally
Help them physically (get something if can't get up, get up, lie down, move around in wheelchair, pick up something, sit, walk)	5	6
Get/buy/cook food and drink	4	6
Nurse them when they are sick/hurt; give them medicine	4	4
Help them	2	2
Keep them company; talk to them; live with them	1	2
Clean house/dishes; make up their own bed	3	1
Drive them	0	1
Play with them	0	1
Take them to the doctor/dentist	0	1
Take them shopping	0	1
Take them for a walk	0	1
Watch TV with them	0	1
Feed them	1	0
Give them a get-well card	1	0
Give them peace and quiet	1	0
Keep them happy; be nice to them	1	0
Take care of them	1	0

TABLE 11
Pretest-Posttest Responses to Question 6
Q6: What can an old person and young person do together?

Response	Pretest Tally	Posttest Tally
Play games (cops and robbers, games, hide and seek, on a swing, on the playground, in the park)	3	8
Play sports (baseball, football, soccer)	0	5
Dance	0	5
Go out to eat; have a picnic; eat; drink	5	4
Shop; go to the mall/store	1	4
Swim	0	3
Hunt; fish	1	2
Sing; make up a song	1	2
Go see a movie	0	2
Go somewhere	0	2
Watch TV/a video	0	2
Make/build/fix things (drawings, buildings)	2	1
Walk	2	1
Read/decorate books	1	1
Go watch a football game	0	1
Run	0	1
Travel	0	1
Help each other	3	0
Be friends	1	0
Have fun	1	0
Nurse each other when sick	1	0
Push old person in a wheelchair	1	0
Set off fireworks	1	0
Share	1	0
Watch and feed animals	1	0

TABLE 12
Pretest-Posttest Responses to Question 7
Q7: Are old people important? Why?

Response	Pretest Tally	Posttest Tally
Yes : No	17 : 3	20 : 0
They help us; do things for us; take care of us	0	8
They are sweet/nice/happy	2	6
They love young people; are good to us; make us happy/laugh	0	4
They are sick/hurt	4	3
They need help; need help walking	3	3
They teach/tell us about the past	1	3
They play with young people; do things with us; take us places	0	3
They might die	5	2
They are old	3	2
Everyone has a reason for being; all people are important	0	2
People care for/love them	3	1
We would miss them; be sad without them	1	1
They give us food, presents, money	0	1
They work	0	1
I don't know	0	1
They are family	2	0
Nobody is important	1	0
They are people	1	0
They get put in history; become famous	1	0
They talk	1	0

TABLE 13
Pretest-Only Responses to Question 8
Q8: When I am old, I will. . . .

Response	Posttest Tally
Work (as a/an artist, coach, courier, teacher, psychologist)	5
Go shopping; go to the store	3
Help someone; be kind to someone	3
Play sports (baseball, football, soccer)	3
Dance	2
Do things outside; go out	2
Eat and drink	2
Go hunting/fishing	2
Play with children	2
Travel/visit	2
Be active	1
Have children	1
Make/draw things	1
Not retire/quit	1
Read	1
Sing	1
Sit	1
Walk	1
Watch TV	1

TABLE 14
Post Field Trip Interview Responses Indicating
Salience of Sights and Activities
Q1: What do you remember about what you saw or did on your field trip to the senior center?

Response	Posttest Tally
Exercising and doing the hokey-pokey with older adults	11
Having lunch with older adults	11
Touring the woodworking and crafts room (where older adults made items)	9
Having snack time with older adults (with punch and cookies provided by older adults)	8
Touring the senior center's store (where items made by older adults were for sale)	8
Listening to an older adult play the piano	7
Sharing our memory collages with older adults	7
Touring the game room (where older adults were playing cards, dominos, pool)	7
Playing in the outdoor park near the senior center	5
Singing holiday songs with older adults	5
Touring the senior center	5
Watching a puppet show (about older adults) at the public library	4
Going to the public library	3
Sharing and reading books (about older adult characters) with older adults	3
Seeing glued-together puzzles that were made by older adults and hung on the walls	2
Touring the TV room	2
Seeing holiday decorations	1
Seeing the portrait of Miss America hanging on a wall	1
Touring the kitchen area	1
Traveling, on the bus, to and from the senior center	1

TABLE 15
Post Field Trip Interview Responses Indicating
Students' Perceptions of what They Learned About Older Adults
Q2: On your field trip to the senior center, what did you learn about older adults?

Response	Posttest Tally
They are active (do woodwork, exercise, play games, put together puzzles, work)	16
They do things children AND grown-ups do (do the hokey-pokey, play basketball)	4
They are fun, happy	3
They are nice	3
They are old	3
They are people/grown-ups	3
They eat	3
They teach us (about books, songs)	3
They are friends	1
They are strong	1
They have wrinkles	1
They love children	1
They talk	1

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